

WHAT IS CLAIMED IS:

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1. A cooling channel cover for a one-piece piston of an internal combustion engine, the piston having a closed cooling channel that runs around inside a piston crown, at a level of a piston ring band, and a ring-shaped recess provided between the piston ring band and a piston shaft, the piston shaft being connected with the piston crown via hubs suspended on the piston crown, the cover comprising a one-piece plastic/^{spring steel} ring having the following characteristics:

a U-shaped cross-section;

a ring bottom;

an outer shank around a circumference of the ring, molded onto the ring bottom and angled off radially to the outside;

an inner shank around the circumference of the ring, angled off radially to the inside;

a first radial division on the ring, said division having a mouth width;

a second radial division on the circumference of the ring, opposite the first division, wherein said second radial division does not separate the outer shank, said second radial division forming a first film hinge for radial deflection of one of the shanks, in its positional plane; and

a second film hinge that permits at least one radial deflection of at least one of the shanks, in such a manner

that in order to close off the cooling channel, the shanks are adapted to engage in a stepped conical recess on an inner circumferential edge of the cooling channel.

2. The cooling channel cover according to claim 1, wherein the first film hinge is determined by a material thickness of the outer shank.

3. The cooling channel cover according to claim 1, wherein the second film hinge is formed on the outer shank or inner shank, and wherein the film hinges are formed by a material weakening at an angle of the outer and inner shanks from the ring bottom.

4. The cooling channel cover according to claim 1, wherein slits that extend ^{close} to the ring bottom are made in the outer and inner shanks, said shanks being non-uniformly distributed over the circumference of the ring, in order to produce different ridge lengths.

5. The cooling channel cover according to claim 4, wherein the first film hinge is arranged in a region between the slits.

6. The cooling channel cover according to claim 5, wherein the slits have a width of 2 to 3 mm and the ridge lengths

between the slits are 15 to 20 mm.

7. The cooling channel cover according to claim 1, wherein the U-shaped ring is made of a polyphenylene sulfide (PPS) or a polyimide (PI). Or a Carbon Spring steel.

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8. A one-piece piston of an internal combustion engine, comprising:

a piston crown

a closed cooling channel that runs around inside the piston crown at a level of a piston ring band;

a piston shaft connected with the piston crown via hubs suspended from the piston crown;

a ring-shaped recess provided between the piston ring band and the piston shaft; and

a cooling channel cover comprising a one-piece plastic/^{Spring steel} ring having the following characteristics:

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a U-shaped cross-section;

a ring bottom;

an outer shank around a circumference of the ring, molded onto the ring bottom and angled off radially to the outside;

an inner shank around the circumference of the ring, angled off radially to the inside;

a first radial division on the ring, said division having a mouth width;

a second radial division on the circumference of the ring, opposite the first division, wherein said second radial division does not separate the outer shank, said second radial division forming a first film hinge for radial deflection of one of the shanks, in its positional plane; and

a second film hinge that permits at least one radial deflection of at least one of the shanks, in such a manner that in order to close off the cooling channel, the shanks engage in a stepped conical recess on an inner circumferential edge of the cooling channel.

9. The piston according to claim 8, wherein the first film hinge is determined by a material thickness of the outer shank.

10. The piston according to claim 8, wherein the second film hinge is formed on the outer shank or inner shank, and wherein the film hinges are formed by a material weakening at an angle of the outer and inner shanks from the ring bottom.

11. The piston according to claim 8, wherein the outer shank is angled off radially to the outside relative to a crosswise piston axis, and the inner shank is angled off radially to the inside, relative to said axis.

12. The cooling channel cover according to claim 8,

wherein slits that extend to the ring bottom are made in the outer and inner shanks, said slits being non-uniformly distributed over the circumference of the ring, in order to produce different ridge lengths.

13. The cooling channel cover according to claim 12, wherein the first film hinge is arranged in a region between the slits.

14. The cooling channel cover according to claim 12, wherein the slits have a width of 2 to 3 mm and the ridge lengths between the slits are 15 to 20 mm.

15. The cooling channel cover according to claim 8, wherein the U-shaped ring is made of a polyphenylene sulfide (PPS) or a polyimide (PI). or carbon spring steel.

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